United States Department of Agriculture

Research, Education, and Economics
Agricultural Research Service

The U.S. Department of Agriculture is a huge department in our executive branch of the government. It has about 20 different agencies administering farm programs, research, food safety, and nutrition.

The Agricultural Research Service is one of those agencies of the USDA, and it is the principal scientific research arm of the Department. In fact it's the largest agricultural research organization in the world. Our agency is charged with solving high priority national agricultural problems to ensure a safe and abundant supply of food and fiber for the U.S. The Administrator of our agency likes to remind us that our unofficial slogan is "Food and Fiber Forever." We have about 100 different locations spread all across the country, some small, some large. We probably have somewhere in the range of 8000-9000 employees in our agency, and about 2000 of those are scientists. In North Dakota we are fortunate to have three major ARS research facilities, the Human Nutrition Laboratory in Grand Forks, the Northern Great Plains Research Laboratory in Mandan, and the Red River Valley Agricultural Research Center here in Fargo on the NDSU campus.

ARS has had a long presence on the North Dakota State University campus. We've been here since the mid-1930s when Dr. Harold Flor, a USDA plant pathologist worked in the Plant Pathology Department at NDSU. He worked on flax rust, and went on to become quite famous in scientific circles for a theory he developed about the interaction between pathogen genes and resistance genes in flax plants.

Later, in the 1940s and 50s, several other scientists were appointed by the Agricultural Research Service, and these scientists were housed in various departments within North Dakota State University, one of the great cooperative relationships between federal and state government that has benefitted both parties, and especially producers and consumers.

But in the early 1960s a major new federal agricultural research facility was proposed for Fargo that made the Agricultural Research Service a major research center in the region, and in the world! There was a growing concern during the 1950s about the amount of agricultural chemicals that were being introduced into the environment, with little knowledge about the fate of those chemicals. For example, a herbicide was sprayed on a wheat field to kill weeds. The weeds died, but that herbicide also ended up on the wheat plant as well. What did the wheat plant do with the chemical? Did the chemical remain unchanged and get ploughed under in the fall? Did the wheat plant convert the chemical to a nontoxic form? Or worse, did it convert the chemical to something even more potent and toxic? If an animal ate the plant, what happened to the chemical? Nobody knew the answers to these question. So in the late 1960 a committee of concerned ARS scientists approached Senator Milton Young from North Dakota, who was then chairman of the Senate Appropriations Committee and asked for his support in funding the construction of a new laboratory to study this problem. Senator Young, the story goes, told them he agreed with the need for such a laboratory, and where in North Dakota would they like to build it? They went back to the drawing board and agreed that if the laboratory was going to be built in North Dakota, then the campus of North Dakota State University was the best place to put it.

Northern Plains Area Red River Valley Agricultural Research Center
Office of the Center Director P.O. Box 5677
1307 18th Street North Fargo, ND 58105-5677

There was at about this same time a realization of a need for new methods of insect control that did not rely so heavily on chemicals. A new technique for the control of screw worm which was a serious insect infestation in cattle had just been developed. It involved the sterilization of male screw worms by exposure to radiation, and then release into infested areas where they would mate but produce no offspring. This was a new control method and it was felt that more basic research was needed on this technique with screw worms, as well as other economically important pests. So this new laboratory in Fargo was also designed to accommodate high level radiation research, and a cobalt-60 radioactive source was housed in the lab for about 25 years. And that laboratory, because of its radiation research was called the Metabolism and Radiation Research Laboratory for those 25 years. And actually, a lot of NDSU graduates in biochemistry and the plant sciences were hired to work in that facility.

Now the radiation source has been removed, and the name of the laboratory changed to the Biosciences Research Laboratory. Its mission has also been modified. We still study the fate of foreign chemicals in animals, because we're concerned about food safety. We want to know what happens to toxic chemicals like dioxins when they are introduced into cattle through contaminated feed or absorbed by other means. We also study different ways to control insects, especially researching new ideas in nonchemical approaches. We also have a major research effort on the control of leafy spurge. That's a brief history of the Biosciences Research Laboratory, the first federal laboratory on the NDSU campus, and how it came into existence. We have about 63 permanent employees in that facility, plus a few temporary employees and a lot of student part-time workers.

We now have another modern, state-of-the-art research laboratory called the Northern Crop Science Laboratory which has been in operation since 1988. This newer laboratory came about as a result of discussions by the Director of the North Dakota Agricultural Experiment Station, who during the 1980s was Dr. Roald Lund, with Senator Mark Andrews of North Dakota. Senator Andrews at that time was in a position in the Senate to do some good things for agriculture, and in particular he wanted to see that North Dakota had a world class laboratory to conduct research on sugarbeets and sunflower. So in 1983 Congress appropriated $800,000 to plan a new laboratory on the NDSU campus. By 1986 construction funds totaling $8.3 million were appropriated and construction began in September of 1986. The building was designed by Lightowler, Johnson, and Associates in Fargo, and Hamel, Green, and Abrahamson of Minneapolis. The construction contract went to Meinecke-Johnson of Fargo, who did a wonderful job of constructing this laboratory. It's a beautiful facility, and has won a number of architectural and design awards. When you're on the NDSU campus you will recognize it by its distinctive turquoise blue roof and its intriguing brick pattern. It's patterned after a farmstead, and you can see the silo in the middle with a couple of barns on each side, and if you use your imagination, you can see that our electron microscopy suite is the chicken coop. All of the brick is from Hebron, ND.

We have three research units within the Northern Crop Science Laboratory, and unlike the Biosciences Research Laboratory, all of the units here are associated with specific commodities. We have a Sunflower Research Unit, a Sugarbeet and Potato Research Unit, and a Cereal Crops Research Unit, which conducts research on wheat, barley, and oats.

All three of these units are working to produce improved germplasm that can be released to other researchers and private seed companies, so that they can incorporate new genes from our sunflowers or sugarbeets or wheat into their proprietary seed. And we have been very successful at that.